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Determinants of accounting policy for identifiable intangible assets

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DETERMINANTS OF ACCOUNTING POLICY

FOR

IDENTIFIABLE INTANGIBLE ASSETS

BY

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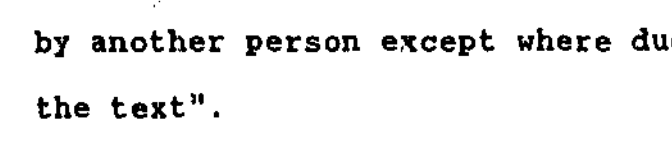
ABSTRACT

This research replicates with modifications the previous study by Coombes, Otto and Stokes (1993) which examines the economic determinants of the amortisation of identifiable intangible assets (IIAs). The study focuses on the published consolidated annual reports of a sample of top 150 listed Australian companies, ranked by market capitalisation, as at June 1989, over the period 1989 to 1990, whereas the previous study by Coombes et al. (1993) concentrates on the top 150 listed Australian companies, ranked by market capitalisation, as at 30 June, 1988, over the period 1986 to 1989.

The empirical evidence of the present research using contracting theory suggests that management's choice of amortising IIAs depends on whether the investment of these assets has a valuable growth option to generate cash flows into the companies. The evidence does not support the practice of IIAs' amortisation in order to reduce covenant limitations under existing debt contracts and future debt raisings, and to cause minimisation of political vulnerability. Support for the profit-based mangerial compensation incentives to amortise IIAs appears only in 1989, possibly due to the pending ED49 "Accounting for Identifiable Intangible Assets" issued by the Australian Accounting Research Foundation which required systematic amortisation of IIAs. These findings are consistent with those of Coombes et al. (1993).

DECLARATION

"I certify that this thesis does not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any institution of higher education and that, to the best of my knowledge and belief, it does not contain any material previously published or written by another person except where due reference is made in the text".



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CHAPTER 1

INTRODUCTION

1.1 Statement of the Problem

In Australia and overseas countries, there has been a long-standing controversial discussion of accounting practice in relation to amortisation of Identifiable Intangible Assets (IIAs) (see Coombes, Otto & Stokes, 1993; English, 1990; Ferris & Hall, 1989; Kohler, 1989; Lawson, 1989; Reilly, 1989; Walker, 1992).

According to Australian Accounting Research Foundation (AARF) (AARF, 1989, p.5), Identifiable Intangible Assets are those "non-monetary assets without physical substance, which are capable of being both individually identified and specifically brought to account, and include but are not restricted to brand names, copyrights, franchises, intellectual property, licences, mastheads, patents and trademarks"; purchased goodwill is excluded because it is an unidentified remainder excess of the purchase consideration in a business acquisition.

The accounting practice of recording IIAs in the annual reports has increased since the introduction of Accounting Standards Review Board (ASRB) Approved Accounting Standard ASRB 1013 "Accounting for Goodwill" in April 1988 (ASRB,

1988), which has statutory backing. It requires the purchased goodwill to be systematically amortised over a maximum period of 20 years. Instead of complying with this statutory requirement, many companies have started to recognise such IIAs as trademarks and broadcasting licences to reduce, in part or entirely, the impact of the requirement for the amortisation of purchased goodwill (Coombes et al., 1993; Wines & Ferguson, 1993).

In August 1989, AARF attempted to develop an accounting standard on IIAs by issuing an exposure draft, ED49 "Accounting for Identifiable Intangible Assets" (AARF, 1988) which required IIAs to be amortised by systematic charges to the profit and loss account over the period during which benefits are expected to occur. ED49 "Accounting for Identifiable Intangible Assets" did not specify an upper limit to the period of time over which an asset may be amortised, but, required detailed disclosures to be made when the amortisation period exceeded 20 years (AARF, 1989, p.14-15). Nevertheless, due to extensive opposition reflected by 118 submissions to AARF (Coombes et al., 1993, p.28-29) and "the present lack of consensus on the subject at a national and international level" (AARF, 1992, p.1), Australian Accounting Standards Board (AASB) and Public Sector Accounting Standards Board (PSASB) withdrew ED49 "Accounting for Identifiable Intangible Assets" in March 1992. To date, there are no Australian accounting regulations or standards in relation

to IIAs, beside Corporations Law (Australian Corporations & Securities, 1993, section 294 (4)) and Accounting Standard AASB 1010 "Accounting for the Revaluation of Non-current Assets" (AASB, 1993) requiring the directors to revalue the assets at their replacement cost or their recoverable amounts at the end of the financial year, Australian companies managers can choose the accounting treatment of the amortisation of IIAs that they wish to apply (Coombes et al., 1993, p.3-4).

1.2 Purpose of the Research

The aim of this research project is to replicate with modifications the study done by Coombes et al. (1993) by investigating the diverse accounting practices, for the amortisation of IIAs as evident in the published consolidated annual reports of a sample of top 150 Australian Stock Exchange listed companies over the period 1989 to 1990. The present research also examines if there are any changes in the IIAs' amortisation accounting policy choice as a result of voluntary compliance before or after the introduction of ED49 "Accounting for Identifiable Intangible Assets" which occurred in August 1989.

The present research seeks to re-test the hypotheses examined by Coombes et al. (1993) in which contracting

theory is used to explain the motivation for management's choice among the accounting methods for amortising IIAs. This research focuses on whether the growth option nature of the IIAs of the company, the effects of IIAs' legal lives, profit-based managerial compensation incentives, company's indebtedness of existing debt contracts, company's ability to raise future debt in debt markets or political vulnerability costs, will affect management's choice of the amortisation method of IIAs in order to increase or decrease reported profit. The findings are then compared with the previous research done by Coombes et al. (1993) and other previous studies (Carnegie & Kallio, 1988; Goodwin & Harris, 1991; Wines & Ferguson, 1993).

1.3 Organisation of the Research

Chapter 2 summarises previous research and develops the research hypotheses to be examined in the study. Chapter 3 presents the research method used and variable measurement and data collection methods. Chapter 4 presents test results, and provides a discussion of the results as well as econometric problems involved in the present study. Finally, Chapter 5 provides the summary and conclusions, limitations and implications of the research.

CHAPTER 2

LITERATURE REVIEW, THEORY & HYPOTHESES

2.1 Literature Review

This section reviews both descriptive and empirical studies related to accounting policies of IIAs adopted by the listed Australian companies.

Carnegie & Kallio (1988) examine the annual reports of the 100 largest listed Australian companies, ranked by market capitalisation, in the financial year 1987. They examine the accounting policies adopted for intangible assets other than goodwill and consider the impact of Accounting Guidance Release 5 (AGR5) "Accounting for Intangible Assets Recognised in Accordance with Statement of Accounting Standards AAS 18 'Accounting for Goodwill'". The findings show that non-compliance with the guidance release is continuing, with 35.4% of the sample companies adopting the practice of zero amortisation for IIAs. One half of the sample companies which were not amortising IIAs provided the reason that amortisation was not necessary because these assets did not diminish in value.

Goodwin & Harris (1991) examine the annual reports of a sample of top 90 listed Australian companies (excluding trust and funds, and mining companies) in the period 1987

to 1989, ranked by market capitalisation, in order to identify the accounting policy changes resulting from compliance with both the Australian Accounting Standard AAS 18 "Accounting for Goodwill" and ASRB 1013 "Accounting for Goodwill". The findings show that, by 1989, only a few companies in the sample were not complying with the requirements of AAS 18 "Accounting for Goodwill" and ASRB 1013 "Accounting for Goodwill". However there is an increase in the number of companies who record IIAs and do not amortise either in full or in part. One-third of the companies recording IIAs revalued at either directors' valuation or an independent valuation, rather than recording IIAs amortised at cost. The findings suggest that the management's accounting choices for goodwill and IIAs in most of Australia's largest companies seem to be influenced by the goodwill accounting standard ASRB 1013 "Accounting for Goodwill".

Wines & Ferguson (1993) examine a sample of 150 Australian Stock Exchange listed companies in the period 1985 to 1989 in order to examine the accounting policies adopted for goodwill and for IIAs. The findings show that, over the study period, non-compliance with goodwill accounting standards AAS 18 "Accounting for Goodwill" and ASRB 1013 "Accounting for Goodwill" is decreasing, but the practice of companies recording IIAs and electing not to amortise IIAs is increasing. As a result, this supports the argument that companies have been recognising IIAs to

reduce the influence of the requirement of accounting standards for goodwill amortisation on reported operating profits.

In summary, the findings of the above studies suggest that the compliance with the relevant goodwill accounting standard to amortise goodwill systematically over a period not exceeding 20 years (ASRB, 1988, ASRB 1013, clause .35) may cause the companies shift to non-compliance with AGR5 "Accounting for Intangible Assets Recognised in Accordance with Statement of Accounting Standards AAS 18 'Accounting for Goodwill'". In other words, the companies have started to re-classify goodwill as IIAs and have adopted the practice of zero amortisation for some or all of the IIAs.

It appears that the only empirical study which is using contracting theory is Coombes et al. (1993). They select a sample of top 150 Australian Stock Exchange listed companies, ranked by market capitalisation, as at 30 June, 1988, over the period 1986 to 1989. They examine the IIAs' amortisation accounting policy choices and the corporate lobbying submissions made in 1989 on ED49 "Accounting for Identifiable Intangible Assets". The findings support the IIAs' growth option hypothesis and the effects of IIAs' legal lives hypothesis, that is, the incentives to amortise IIAs depend upon the payoffs under claimholder contracts in the firms in order to indicate

the cash flows to be derived from the IIAs. Support of the findings for the profit-based management compensation incentives to amortise IIAs only occurs in 1989 when the AARF introduced ED49 "Accounting for Identifiable Intangible Assets". In addition, the findings reveal that the debt covenants hypotheses for existing debt and future debt raisings, and the political visibility costs hypothesis receive little or no support.

From the literature reviewed, with the exception of Coombes et al. (1993), the use of contracting theory to demonstrate some explanation for the amortisation of IIAs seems to be extremely thin. It is the purpose of this research to employ contracting theory to examine the reasons why companies adopt particular IIAs' amortisation policy. Contracting theory will be discussed in the following section.

2.2 Contracting Theory

Accounting researchers have been concentrated on developing a positive accounting theory to explain and predict the economic factors that determine management's choices of accounting procedures and methods. There are two stages in the development of positive accounting theory. The first is the information perspective which investigates the relationship between the announcement of

accounting earnings and the reaction of share prices, and suggests that accounting methods are chosen to reveal the manager's expectations about the future cash flows of the firm. The second is the contracting perspective which involves contracting costs in firms and in the political process, and focuses on either the *ex post* research (opportunistic behaviour) or the *ex ante* research (efficient contracting) (Houltausen, 1990; Watts, 1992; Watts & Zimmerman, 1990).

The *ex post* research concentrates on the "specification of an accounting policy choice as a part of the bonding and monitoring process to reduce the costs of contracting", whereas the *ex ante* research concentrates on the rationalisation of an accounting policy choice for opportunistic behaviour by managers to transfer wealth away from other claimholders on the firm to managers in order to maximise their own utility (Hodgson, Holmes & Kam, 1992, p.388).

Jensen & Meckling (1976) examine the contractual relationship between managers and shareholders and between managers-shareholders and debtholders. To them, the firm is defined as a "nexus of contracts", which in turn will give rise an "agency relationship" between the suppliers of various production factors, such as debt, equity and human capital (Whittred & Zimmer, 1990, p.7). The agency relationship described by Jensen & Meckling (1976, p.308)

is "a contract under which one or more person (the principal(s)) engage another person (the agent) to perform some services on their behalf which involves delegating some decision making authority to the agent".

However, this agency relationship causes the problem of agency costs. Jensen & Meckling (1976, p.308) have identified a list of agency costs which include monitoring expenditures by the principal, bonding expenditures by the agent and a residual loss. These agency costs which often arise in "contractual scenarios" have led to the use of the term "contracting costs" instead of agency costs (Watts & Zimmerman, 1990, p.134).

The contracts (debt covenants, management compensation plan, contracts arise in political process, and other contracts, such as sales contracts) between the suppliers of production factors are often written around accounting numbers. Contracting theory suggests that the contracts between the contracting parties via accounting numbers as *ex ante* mechanisms to minimise the contracting costs and hence maximise the value of the company (Watts & Zimmerman, 1990). However, on one hand, the accounting numbers are used to enforce the legal and property rights between the contracting parties; on the other hand, manipulation in the measurement of these accounting numbers as the result of *ex post* opportunistic managerial

behaviour can effectively redistribute the wealth between the parties. (Whittred & Zimmer, 1990, p.7)

As a result, contracting theory is often used to explain and predict the management's incentives to choose a particular accounting procedure and method. The management incentives examined in this research relate to the growth option nature of IIAs, the effects of legal provisions governing the utilisation of IIAs, the debt contract incentives and the political costs. Therefore, the hypotheses developed in this study are based on these management incentives and will be discussed in the following section.

2.3 Hypotheses

Since this research is a replication of the study done by Coombes et al. (1993), all the development of hypotheses in the present research is based on the same theoretical framework used in the previous study, with some exceptions made in this study.

First, the period 1989-1990 was selected for the present research, to consider if there are any changes in the IIAs' amortisation accounting policy choice before and subsequent to the issue of ED49 "Accounting for Identifiable Intangible Assets". The previous study

selected the period 1986-1989 which is before the August 1989 release of the ED49 "Accounting for Identifiable Intangible Assets", in order to avoid the effect of exposure draft.

Next, the dependent variable used in the previous study, AMORT, concentrates only on the amortisation expenses, whereas the present study uses AMORT to focus on all the write-offs of IIAs including amortisation expenses, abnormal items and extraordinary items in order to capture the whole aspect of the IIAs' amortisation accounting choices (see Section 3.2.1 later).

The previous study uses the measure of total beginning balance of IIAs to calculate the independent variables, whereas the present study uses the measure of IIAs' average balance by dividing the total of IIAs' opening balance and closing balance in the study year by two, in order to take into consideration of the impact of disposal or acquisition of IIAs (see Section 3.2.1 later).

In addition, the present study uses market capitalisation which was taken from *Personal Investment* as the measure of the denominator of independent variable in hypothesis H_{1a} (IIAMC, that is the ratio of IIAs to market capitalisation of companies) and as the measure of the independent variable in hypothesis H_4 (SIZE) (see Section 3.2.2 later). The previous study uses market value of equity

which was taken from *The Australian* in hypothesis H_{1a} and their own formula to calculate market capitalisation in hypothesis H_4.

Finally, the present study does not include the hypothesis of political sensitive industries which used by Coombes et al. (1993). It was not possible, with the time frame of this study, to seek the judgements of six individual academics to rate the industries.

2.3.1 The Growth Option Nature of IIAs

Coombes et al. (1993, p.6) argue that the choice of amortisation rate is an "efficient revelation" of the growth option of IIAs. The companies with valuable growth options on investments of IIAs are less likely to choose a high amortisation rate as this would pass the wrong perception to the market about the investment value of the IIAs in generating cash flows and thus the value of the company.

This argument is made with the underlying assumption that the managerial performance is tied to the value of the company and thus the stock price movements (Coombes et al., 1993, p.6-7; Watts & Zimmerman, 1986, p.203). Consequently, the objectives of the management can be aligned with those of the company, so that the managers

are more concerned with the real economic performance of the company and the cash flow effect of the IIAs' amortisation accounting choices.

Further, the managers are less concerned with the profit-based compensation incentives when the investments of IIAs has a valuable growth option and thus more likely to choose the practice of lower amortisation rate of IIAs. This research uses the profitability measure formula (rate of growth in operating profit) developed by Ayres (1986) to proxy the profit-based compensation plan.

Therefore, it is suggested in this research:

H_{1a}: The higher the ratio of identifiable intangible assets to market capitalisation of companies, the lower the amortisation rate of identifiable intangible assets.

H_{1b}: The lower the rate of growth in operating profit of companies, the lower the amortisation rate of identifiable intangible assets.

2.3.2 The effects of Legal Provisions Governing the Utilisation of IIAs

Coombes et al. (1993, p.8) suggest that the different types of legal lives of IIAs will indicate the

differential state of investment in the future, in which "legal lives specify a maximum period over which the corporation will have exclusive right to the cash flows from investments in the assets." For instance, patents (16 years legal lives) have a higher amortisation rate than trademarks (no defined legal lives). Therefore, it is suggested in this research:

H_2: Companies with identifiable intangible assets that have limited legal lives are more likely to have higher amortisation rate for identifiable intangible assets than companies with identifiable intangible assets that have no specified legal lives.

2.3.3 Debt Contract Incentives

Research in this area has concentrated on the details of covenant limitations to explain accounting chcice (Watts & Zimmerman, 1990, p.139). Consistent with Coombes et al. (1993), the two common covenants used in this research are leverage and interest coverage ratios, whereas leverage ratio is the maintenance covenants of the existing debt, interest coverage ratio is measured when further debt is to be issued. The usual argument is that management may use income increasing accounting methods (in the present study: the practice of lower amortisation rate of IIAs) to ease the covenant limitations under existing debt

contracts and to improve interest coverage ratio for debt to be raised in the future. (Coombes et al., 1993, p.9-11; Whittred and Zimmer, 1986). Therefore, it is suggested in this research:

H_{3a}: The higher the ratio of debentures to total liabilities of companies, the lower the amortisation rate of identifiable intangible assets.

H_{3b}: The lower the interest coverage ratio of companies, the lower the amortisation rate of identifiable intangible assets.

2.3.4 Political Costs

Previous research (Coombes et al., 1993, p.11; Watts & Zimmerman, 1986) has argued that the reported profits of the companies that are more politically vulnerable, are more likely to be examined by the government agencies, trade unions and community groups who may have incentives to effect wealth distributions. Firm size, which is a traditional political cost proxy (Watts & Zimmerman, 1990, p.139), is used as surrogate for political vulnerability. To reduce the political attention, larger companies tend to choose income decreasing accounting methods (in this study: the practice of higher amortisation rate of IIAs). Therefore, it is suggested in this research:

H_4: The larger the size of a company, the higher the amortisation rate of identifiable intangible assets.

However, size is a noisy proxy for political cost because size may surrogate for other effects such as industry membership, competitive advantage, information production costs, and management ability and advice (Ball & Foster, 1982). Hence, the results of the size hypothesis must be carefully interpreted.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Sample Selection

The initial sample of companies was selected from the 150 largest listed Australian companies, ranked by market capitalisation published in June 1989 edition of *Personal Investment*. The reasons for this sample selection are, (1) to ensure that all the accounting practices identified were adopted in periods considerably some time after the October 1987 stock or equity market crash; (2) any changes in the requirement to the IIAs' amortisation accounting policy choice as a result of voluntary compliance before or after the introduction of ED49 "Accounting for Identifiable Intangible Assets", which occurred in August 1989, should be readily apparent; and (3) consistent with Coombes et al. (1993, p.12), the sample of 150 largest listed Australian companies was considered to be appropriate on the premise that they are the larger companies rather than smaller companies, and thus more likely to have engaged in takeover activity in the past and to have recorded IIAs as part of any business acquisition cost.

Once the initial sample of companies was identified, the companies' consolidated annual reports, which were

available in either Australian Graduate School of Management (AGSM) annual report microfiche file or Australian Stock Exchange annual report microfiche file for the years 1989 or 1990, were examined.

Table 1

Sample Selection

	1989	1990
Initial sample of Top 150 companies based on market capitalisation in 1989	150	150
Less: Companies without IIAs in Balance Sheets	(101)	(100)
Company for which it was unable to determine the amount amortised	(1)	(1)
Companies that were reporting other than $A in annual reports	(2)	(2)
Subsidiary company of another company in the same initial sample	(1)	(1)
Companies for which it was unable to determine the market capitalisation	0	(2)
Companies that were delisted	0	(5)
Companies satisfied selection criteria	45	39

As shown in Table 1, 101 companies in 1989 and 100 companies in 1990 were eliminated due to these companies having no IIAs recorded in the consolidated annual reports. For both financial years, several companies were

excluded: 1 company for which it was not possible to determine the IIAs' amortisation amount, 2 companies were not using Australian currency in their consolidated annual reports and 1 company was the 65% subsidiary company of another company included in the same sample. This resulting in a sample of 45 companies that satisfied the selection criteria in the year 1989.

For the year 1990, further elimination was done on: 2 companies because it was impossible to determine the market capitalisation for these companies and 5 companies were delisted from Australian Stock Exchange, leaving 39 companies being included in the sample.

The resulted sample companies are listed in Appendix A for the year 1989 and Appendix B for the year 1990.

3.2 Variable Measurement and Data Collection Methods

3.2.1 Dependent Variable

This research study is focusing on management's choice of IIAs' amortisation accounting policy. Therefore, the dependent variable used in this study is the amortisation rate (AMORT), which will be correlated with the independent variable across the whole sample. AMORT is calculated as follows:

$$\text{AMORT} = \frac{\text{amortisation of } IIA_t}{IIA_t}$$

where,

amortisation of IIA_t = (total IIAs' amortisation expenses + total abnormal IIA's write-off items + total extraordinary IIAs' write-off items) for the year t.

The justification for using this total measure of IIAs' amortisation is to consider the entire IIAs' amortisation accounting policy by management, not only the normal amortisation expenses of IIAs.

IIA_t = average balance of identifiable intangible assets at the end of year t which is calculated by: (Total IIA_t + Total IIA_{t-1})/2

where,

Total IIA_t = total IIAs at the end of year t

Total IIA_{t-1} = total IIAs at the end of year t-1.

The justification for using this average measure of IIA_t is to consider the impact of the disposal or acquisition of IIAs. This measure tends to smooth out the extreme balance of total IIAs when there is recognition of disposal or acquisition of IIAs half way through the year t or the study year.

3.2.2 Independent Variables

Hypothesis H_{1a} states that the higher the ratio of IIAs to market capitalisation of companies (IIAMC), the lower the amortisation rate of IIAs (AMORT). IIAMC is calculated as follows:

$$IIAMC = \frac{IIA_t}{MC_t}$$

where,

IIA_t = as previously defined in section 3.2.1

MC_t = market capitalisation at the end of year t which was taken from June 1989 (p.76) and June 1990 (p.90) editions of *Personal Investment*.

Hypothesis H_{1b} states that the lower the rate of growth in operating profit of companies (OPGROW), the lower the amortisation rate of IIAs (AMORT). OPGROW is calculated as follows:

$$OPGROW = \frac{PretaxOP_t + AMORT_t - PretaxOP_{t-1}}{PretaxOP_{t-1}}$$

where,

$PretaxOP_t$ = operating profit before tax for the year t

$AMORT_t$ = the amortisation rate of IIAs for the year t and this effect is realised by adding back to $PretaxOP_t$

$PretaxOP_{t-1}$ = operating profit before tax for the year t-1.

Hypothesis H_2 states that companies with IIAs that have limited legal lives (LIFE) are more likely to have higher amortisation rate of IIAs (AMORT) than companies with IIAs that have unlimited legal lives. Consistent with Coombes et al. (1993, p.15), the IIAs of each company were divided into two groups as either having a limited life or having an unlimited life. Those assets grouped as having a limited legal life are: patents, property rights, copyrights, management rights, film and television production rights, television program rights, licences and franchise agreements; and those not having legal lives are: business and brand names, trademarks, broadcasting licences (Australian companies always extend the legal

lives of broadcasting licences which are renewable every three years under the provisions of the Broadcasting Act 1942), fermentation technology and mastheads. One of the problems in using this grouping method is that many companies group together the IIAs of different classes which have different legal lives, for example, patents, trademarks and licences, and only disclose the total balance of the assets in the published consolidated annual reports. This problem is dealt with using the same coding as Coombes et al. (1993, p.15), by assigning the value "1" to the company's group of IIAs, if any of the company's IIAs had a limited life and by assigning the value "0" if all of the company's IIAs have unlimited lives. However, there may be a bias expectation involved in the finding of the H_2 prediction, when using this grouping method, the companies which have IIAs with unlimited lives (expected to have a lower amortisation rate of IIAs) are treated the same as those IIAs with unlimited lives (expected to have a higher amortisation rate of IIAs).

Hypothesis H_{3a} states that the higher ratio of debentures to total liabilities of companies (DEB), the lower the amortisation rate of IIAs (AMORT). DEB is calculated as follows:

$$DEB = \frac{debenture_t}{TL_t}$$

where,

$debenture_t$ = total debentures at the end of year t

TL_t = total liabilities at the end of year t.

Hypothesis H_{3b} states that the lower the interest coverage ratio of companies (INTCOV), the lower the amortisation rate of IIAs (AMORT). INTCOV is calculated as follows:

$$INTCOV = \frac{PretaxOP_t + AMORT_t + Interest_t}{Interest_t}$$

where,

$PretaxOP_t$ = operating profit before tax for the year t

$AMORT_t$ = the amortisation rate of IIAs as previously defined

$Interest_t$ = total interest expenses (which excludes interest capitalisation) for the year t.

Hypothesis H_4 states that the larger the size of a company (SIZE), the higher the amortisation rate of IIAs (AMORT). As mentioned in Section 2.3.4, firm size has commonly been used as a proxy for political costs (Watts & Zimmerman, 1990, p.139). There are a variety of measurements of size such as total assets (Hagerman & Zmijewski, 1979), sales revenue (El-Gazzer, Lilien & Pastena, 1986), market capitalisation, and net income after tax and before extraordinary items (Wong, 1988). Initially, market capitalisation is used as the measure of size, the measures of total assets and sales revenue will be discussed for the sensitivity of the choice of the size measurement in Section 4.5.1. SIZE is measured as follows:

$$SIZE = MC_t$$

where,

MC_t = market capitalisation as previously defined.

A summary of the calculation of each variable is presented in Appendix C. Section 4 will discuss the results of the regression analyses of these dependent and independent variables.

CHAPTER 4

RESULTS

4.1 Descriptive Statistics

The classes of IIAs disclosed in the consolidated annual reports which were examined are summarised in Table 2. The classes and disclosure frequency of IIAs are comparable with that reported by Coombes et al. (1993, p.17) and previous studies (see Carnegie & Kallio, 1988, p.82; Goodwin & Harris, 1991, p.25; Wines & Ferguson, 1993, p.98). Table 2 reveals that rights (of any type) are the IIAs that are most common and have the greatest disclosure frequency in the sample companies, whereas patents, trademarks and licences are the IIAs that have second greatest disclosure frequency.

Table 2

Classes of IIAs Involved

Class	1989	1990	Total
Rights (of any type)	14	12	26
Patents/Trademarks/Licences	8	7	5
Brandnames	5	5	0
Radio and TV Licences	4	3	7
Patents/Trademarks	3	3	6
Management Agreements	3	3	6
Patents	2	3	5
Tradenames	2	2	4
Trademarks	2	2	4
Licences (of any type)	1	1	2
Trademarks/Tradenames/Brandnames	1	1	2
Technological Assets	1	1	2
Brandnames/Patents/Trademarks	1	1	2
Trade/Business names	1	1	2
Trademarks/Licences	1	1	2
Patents/Licences/Technologies	1	1	2
Brandnames/Trademarks/Licences	1	0	1
Patents/Newspaper Mastheads	1	0	1
Business names/Trademarks	1	0	1
Newspaper Mastheads	1	0	1
Trademarks/Brandnames	1	0	1
Tradenames/Management Rights	1	0	1
Trade & Brandnames	1	0	1
Brandnames/Trademarks/Other	1	0	1
Patents/Licences	0	1	1
Franchises	0	1	1
TOTAL[a]	58	49	107

[a]several companies had recognised more than one class of IIAs.

Table 3

Accounting Policies of Sample Companies

Policy	1989 n	1989 %	1990 n	1990 %
1. amortisation	15	33.3	16	41.0
2. no amortisation	19	42.2	17	43.6
3. 1 & 2	5	11.1	3	7.7
4. write-off extraordinary	2	4.5	1	2.6
5. write-off abnormal	2	4.5	2	5.1
6. 1 & 3	1	2.2	0	0.0
7. 2 & 3	1	2.2	0	0.0
TOTAL	45	100.0	39	100.0

The accounting policies used by the sample companies in each of the financial years 1989 and 1990 are summarised in Table 3. This table follows a similar pattern to Coombes et al. (1993, p.18) and Wines & Ferguson (1993, p.100), except for the first category - amortisation, which is combining systematic amortisation and non-systematic amortisation, due to the reason that most of the sample companies' consolidated annual reports only reported the total balance of amortisation without disclosing the amortisation period of estimated useful life for each individual IIA. The accounting policies in Table 3 are:

1. Identifiable Intangibles assets (IIAs) capitalised and amortised (amortisation).
2. IIAs capitalised and not amortised (no amortisation).
3. IIAs capitalised with a mixture of amortisation and non-amortisation for different classes of IIAs (1 & 2).
4. IIAs written off in a lump sums as an extraordinary item (write-off extraordinary).
5. IIAs written off in a lump sum as an abnormal item (write-off abnormal item).
6. IIAs capitalised and amortised and also a lump sum extraordinary write-off is made (1 & 3).
7. IIAs capitalised and not amortised and also a lump sum extraordinary write-off is made (2 & 3).

Whereas in the year 1989, 19 (42.2%) of the 45 sample companies chose not to amortise any of their IIAs, 5 companies (11.1%) applied a dual policy in which some but not all of the IIAs were amortised; in the year 1990, of the 39 sample companies, 17 (43.6%) chose the zero amortisation policy and 3 companies (7.7%) chose the dual policy. However, AARF would not accept no amortisation of IIAs because they view these assets as having finite lives (Coombes et al., 1993, p.3), and ED49 "Accounting for Identifiable Intangible Assets" was aiming to deter this practice of zero amortisation. The reasons given by the sample companies in the consolidated annual reports for

not amortising some or all of their IIAs are summarised in Table 4.

Table 4

Reasons Given for Accounting Policy on IIAs

	1989		1990	
	n	%	n	%
Reasons for not amortising				
Infinite Useful Economic Life and Regularly Revalued	5	19.2	3	13.6
Regularly Revalued	3	11.5	3	13.6
Limited Useful Life but likely to be Renewed	3	11.5	3	13.6
No Diminution in Value and Regularly Revalued	2	7.7	2	9.1
Infinite Useful Economic Life	1	3.9	1	4.6
Indeterminable Useful Economic Life and Regularly Revalued	1	3.9	1	4.6
No amortisation until Limitation or Loss of useful economic life	1	3.9	0	0.0
No Reason/No policy	10	38.4	9	40.9
TOTAL	36[a]	100.0	22[b]	100.0
Reasons for amortising				
Finite Useful Economic Life	15	60.0	13	61.9
Amount write-off to recognise permanent diminution	2	8.0	3	14.3
No Reason/No Policy	8	32.0	5	23.8
TOTAL	25[a]	100.0	21[b]	100.0

[a]6 companies in 1989 and [b]4 in 1990 with dual policies stated different reasons for different classes of IIAs.

Consistent with Coombes et al. (1993, p.19), the most common reasons for not amortising IIAs were that the asset involved is either characterised to have an infinite useful economic life and subjected to regularly revaluation, or having a limited useful life but the life is likely to be extended or renewed. On the other hand, the reasons given for amortising the IIAs were that the asset is either having a finite useful economic life (the most common reason), or recognising permanent diminution in value. From the results in Table 4, prima facie, the hypotheses H_{1a} and H_2 are supported.

The Systat (Version 5.1) statistical software package (Wilkinson, 1989) was used in this research to analyse and present the outcome of descriptive statistics, simple regression (univariate analysis) and multiple regression (multivariate analysis).

4.2 Econometric Problems

Regression analyses for both the two-variable linear (simple) regression and multiple regression are used to test the hypotheses stated in Section 2.3. Whenever more than one independent variable appears in a regression model, there are other issues which arise about the relationships between some or all of the variables. There are two fundamental assumptions that are critically important and relevant to the validity of the regression results in this study (Bails & Peppers, 1993, p.240, 254-256; Draper & Smith, 1981):

(1) No multicollinearity: the independent variables must be independent of each other. In other words, the problem of multicollinearity occurs when the independent variables contribute somewhat overlapping information for describing the dependent variable.

(2) No heteroscedasticity: the assumption of the homoscedasticity that the variance of the error term is constant for all values of independent variables. That is heteroscedasticity occurs when the nonconstant error variance occurs.

Econometric problems occur when these two assumptions are violated. In other words, when the problems of heteroscedasticity and multicollinearity occur, the

validity of the regression results will be questionable. These econometric problems occurred in this study and have been dealt with by transformation of the variables (Draper & Smith, 1981) using statistical software package Systat Version 5.1 (Wilkinson, 1989). All the observations of dependent variable AMORT were increased by 0.0001 before receiving the natural log transformation due to a number of zero value observations. The independent variable IIAMC received the same transformation treatment. The independent variable DEB was redefined using a fourth root transformation. All the negative observations of the independent variable INTCOV were winsorized to the next extreme small positive value of 0.100 in 1989 and 0.555 in 1990 before receiving the natural log transformation. The most extreme negative observations of the independent variable OPGROW were winsorized to the next most extreme negative value: -72.007 to -3.002 in 1989 and -78.688 to -5.661 in 1990, then, all the observations received the exponential function transformation. All the observations of the independent variable SIZE received the natural log transformation. No transformation was made to the independent variable LIFE.

The statistical procedures that are available in Systat Version 5.1 to test for the existence of multicollinearity and heteroscedasticity will be discussed and shown in section 4.4.

Table 5 presents descriptive statistics of the raw data for dependent and independent variables in both 1989 and 1990 across the sample companies.

Table 5

Descriptive Statistics (Raw Data)

Variables	Mean	Median	Std.Dev.	Minimum	Maximum
		(1989 n = 45)			
AMORT	0.090	0.002	0.219	0.000	1.000
DEB	0.004	0.000	0.013	0.000	0.078
INTCOV	9.047	4.051	24.851	-0.594	168.654
OPGROW	-1.459	0.198	10.784	-72.007	1.628
IIAMC	0.406	0.037	1.046	0.000	5.331
SIZE	0.16E10	0.72E10	0.21E10	0.12E9	0.10E11
LIFE	Number of Limited Life Companies (1) = 32				
	Number of Unlimited Life Companies (0) = 13				
		(1990 n = 39)			
AMORT	0.085	0.005	0.222	0.000	1.000
DEB	0.001	0.000	0.005	0.000	0.026
INTCOV	68.116	4.643	317.924	-1.378	1958.083
OPGROW	-1.845	0.025	12.747	-78.688	8.046
IIAMC	0.487	0.046	1.908	0.000	11.676
SIZE	0.18E10	0.25E10	0.99E9	0.82E8	0.13E11
LIFE	Number of Limited Life Companies (1) = 29				
	Number of Unlimited Life Companies (0) = 10				

Table 6 presents descriptive statistics for the transformed data. The transformation of data is discussed in Section 4.2.

Table 6

Descriptive Statistics (Transformed Data)

Variables	Mean	Median	Std.Dev.	Skewness	Kurtosis
		(1989 n = 45)			
lnAMORT	-5.891	-6.136	3.382	0.271	-1.578
$DEB^{0.25}$	0.068	0.000	0.140	1.859	2.182
lnINTCOV	1.287	1.389	1.298	-0.452	2.442
eOPGROW	1.412	1.219	0.985	2.124	5.487
lnIIAMC	-3.371	-3.294	2.714	-0.443	0.001
lnSIZE	20.500	20.395	1.159	0.444	-0.946
LIFE	Number of Limited Life Companies (1) = 32				
	Number of Unlimited Life Companies (0) = 13				
		(1990 n = 39)			
lnAMORT	-5.711	-5.207	3.332	0.095	-1.611
$DEB^{0.25}$	0.040	0.000	0.104	2.381	4.194
lnINTCOV	1.689	1.535	1.581	1.804	4.434
eOPGROW	1.420	1.025	1.142	1.409	1.069
lnIIAMC	-3.397	-3.077	2.429	-0.173	0.538
lnSIZE	20.642	20.716	1.217	0.119	-0.664
LIFE	Number of Limited Life Companies (1) = 29				
	Number of Unlimited Life Companies (0) = 10				

4.3 Univariate Analysis

Table 7 presents, using Pearson product moment correlation, the correlation coefficients between the dependent variable (AMORT) and the set of independent variables.

Table 7

Pearson Correlations with InAMORT

Correlation Coefficient ('p', one-tailed)					
$DEB^{0.25}$	lnINTCOV	eOPGROW	lnIIAMC	lnSIZE	LIFE
1989 (n = 45)					
0.249	0.108	0.138	-0.301	0.046	0.397
(0.050)	(0.240)	(0.183)	(0.022)	(0.382)	(0.004)
1990 (n = 39)					
0.152	0.019	0.022	-0.316	0.043	0.388
(0.178)	(0.455)	(0.447)	(0.025)	(0.397)	(0.008)

Consistent with Coombes et al. (1993, p.21) across the two financial years 1989 and 1990, both the IIAMC ($p<.05$) and LIFE ($p<.01$) are significantly correlated with AMORT, and the negative correlation for IIAMC and positive correlation for LIFE support hypotheses H_{1a} and H_2. Although the independent variable $DEB^{0.25}$ in 1989 ($p=.050$) is significantly correlated with AMORT, the positive

correlation does not support hypothesis H_{3a}. In 1990, $DEB^{0.25}$ is no longer significant in the opposite predicted direction. The results on the remaining variables are not significant at conventional levels (at least .100) and thus do not support H_{1b}, H_{3a}, H_{3b} and H_4. Also, the results from Table 7 indicate that there is no difference in the IIAs' amortisation policy choice before or after the release of ED49 "Accounting for Identifiable Intangible Assets".

Soliman (1989, p.66) suggests that no independent variable *per se* is likely to explain the dependent variable when the preliminary examination of the simple correlation coefficients shows low correlation. It appears in this study that the highest correlation is consistently between the independent variable LIFE and the dependent variable AMORT, 0.397 in 1989 (R^2 = 0.158) and 0.388 in 1990 (R^2 = 0.151). Therefore, it is expected that a combination of the set of independent variables when examined using multivariate analysis will provide better and a more powerful explanation of the accounting choices made by management.

4.4 Multivariate Analysis

The multivariate model used by this research is:

$$\text{InAMORT} = a0 - B_1 \ln\text{IIAMC}_i + B_2 e\text{OPGROW}_i + B_3\text{LIFE}_i - B_4\text{DEB}_i^{0.25} + B_5 \ln\text{INTCOV}_i + B_6 \ln\text{SIZE}_i + e_i$$

where, i = company 1 to company 45 in the year 1989 and company 1 to company 39 in the year 1990.

Table 8 below presents the ordinary least squares (OLS) regression results on all the variables across 1989 and 1990.

In 1989, the estimated R^2 is 0.345 and the F ratio 3.332 is significant at the p=.010 level. The IIAMC and LIFE variables are significant with the expected sign at the p<.026 level (two-tailed). The OPGROW variable is significant (p<.083, one tailed) with the expected sign and the remaining variables are insignificant at conventional levels (at least .100). In 1990, the estimated R^2 is 0.278 and the F ratio 2.051 is significant at the p=.087 level. Consistent with the results in 1989, both the IIAMC and LIFE variables are significant at the p<.028 level (two-tailed) with the expected sign. The remaining variables including OPGROW are insignificant at the conventional levels. It appears from the results in Table 8 that the hypothesis H_{1b} is the only hypothesis

Table 8

OLS Regression Results

Variables	Pred.Sign	Coefficient	t-Stat	'p'(two-tailed)
		Dependent Variable: lnAMORT		
		1989 (n = 45)		
Constant	+/-	-3.752	-0.461	0.647
lnIIAMC	-	-0.416	-2.323	0.026
eOPGROW	+	0.729	1.414	0.165
LIFE	+	3.251	3.113	0.004
$DEB^{0.25}$	-	4.419	1.265	0.214
lnINTCOV	+	-0.003	-0.006	0.995
lnSIZE	+	-0.350	-0.867	0.392
F-Ratio	3.332	(p=.010)		
estimated R^2	0.345			
		1990 (n = 39)		
Constant	+/-	-5.722	-0.659	0.514
lnIIAMC	-	-0.509	-2.307	0.028
eOPGROW	+	0.639	0.997	0.326
LIFE	+	2.875	2.459	0.020
$DEB^{0.25}$	-	2.932	0.573	0.571
lnINTCOV	+	-0.317	-0.697	0.491
lnSIZE	+	-0.211	-0.493	0.625
F-Ratio	2.051	(p=.087)		
estimated R^2	0.278			

that has inconsistent results between 1989-1990 which is supported in 1989, p=.083 (one-tailed) with expected sign and not in 1990. This is possibly because of the issue of the ED49 "Accounting for Identifiable Intangible Assets" which occurred in August 1989.

The remaining results are consistent with the univariate results which support hypotheses H_{1a} and H_2 and do not support hypotheses H_{3a}, H_{3b} and H_4. These results are also comparable with those in Coombes et al. (1993, p.22).

Table 9 presents the Pearson correlation matrix for the year 1989 between independent variables and extended results about the information of multicollinearity problem. According to Belsley, Kuh & Welsh (cited in Wilkinson, 1989, p.163), "a condition index greater than 15 indicates a possible problem and one greater than 30 suggests a serious problem with collinearity." As shown in the table 9, no condition index is greater than 15 except index 7 which is between constant and SIZE as indicated in variance proportions. Since the constant is only an intercept, it is not a problem in this case. Therefore, there is no problem with multicollinearity among the independent variables. A plot of residuals against predicted values is shown in Figure 1 which indicates little change in the residuals as the estimates (predicted values) increase, as the problem with heteroscedasticity occurs when the non-constant variance

appears to be a large increasing or decreasing function of the estimates (Draper & Smith, 1981, p.237). Therefore, there is no problem with heteroscedasticity in the regression.

Table 9

Pearson Correlation Matrix (1989 n = 45)

	LIFE	$DEB^{0.25}$	lnINTCOV	eOPGROW	lnIIAMC	lnSIZE
LIFE	1.000					
$DEB^{0.25}$	-0.259	1.000				
lnINTCOV	-0.017	0.091	1.000			
eOPGROW	0.099	0.192	-0.354	1.000		
lnIIAMC	-0.136	0.100	0.261	0.076	1.000	
lnSIZE	-0.135	-0.130	-0.016	0.035	0.220	1.000

Extended Results:

Condition Indices

1	2	3	4	5	6	7
1.000	2.287	3.502	4.009	4.635	6.291	58.885

Variance Proportion

	1	2	3	4	5	6	7
Constant	0.000	0.000	0.000	0.000	0.000	0.006	0.994
LIFE	0.007	0.017	0.166	0.014	0.235	0.553	0.008
$DEB^{0.25}$	0.007	0.483	0.285	0.072	0.138	0.000	0.015
lnINTCOV	0.010	0.052	0.224	0.428	0.257	0.030	0.000
eOPGROW	0.007	0.025	0.001	0.024	0.566	0.371	0.005
lnIIAMC	0.010	0.004	0.149	0.626	0.047	0.127	0.037
lnSIZE	0.000	0.000	0.000	0.000	0.000	0.005	0.994

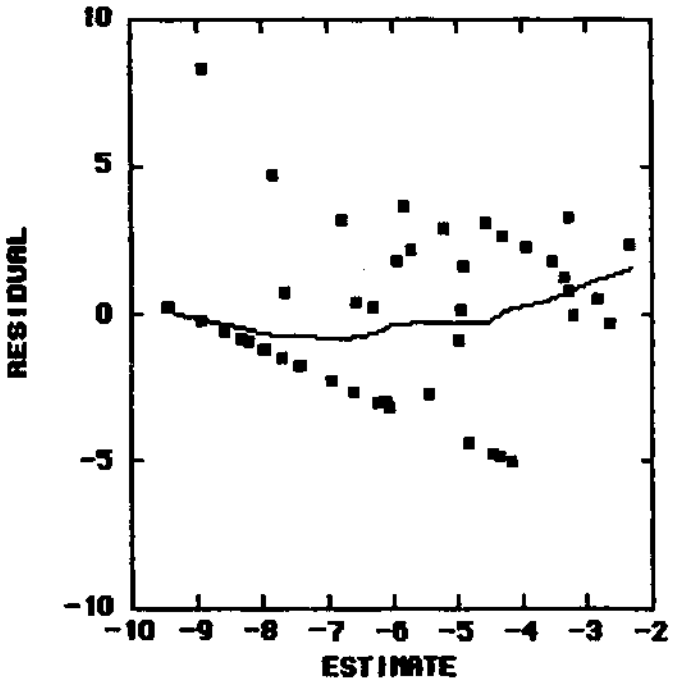

Figure 1 - A Plot of Residuals Against Estimates (Predicted Values) for 1989 (n = 45)

Table 10 and figure 2 present the results for the year 1990 which are similar to those of Table 9 and Figure 1.

Table 10

Pearson Correlation Matrix (1990 n = 39)

	LIFE	$DEB^{0.25}$	lnINTCOV	eOPGROW	lnIIAMC	lnSIZE
LIFE	1.000					
$DEB^{0.25}$	-0.225	1.000				
lnINTCOV	-0.090	0.036	1.000			
eOPGROW	0.053	0.139	-0.702	1.000		
lnIIAMC	-0.025	-0.041	0.248	-0.290	1.000	
lnSIZE	-0.051	-0.110	0.119	-0.126	0.286	1.000

Extended Results:

Condition Indices

1	2	3	4	5	6	7
1.000	2.243	3.214	4.201	5.410	7.171	55.738

Variance Proportion

	1	2	3	4	5	6	7
Constant	0.000	0.000	0.000	0.000	0.003	0.004	0.994
LIFE	0.008	0.006	0.009	0.325	0.508	0.145	0.000
$DEB^{0.25}$	0.005	0.576	0.284	0.110	0.011	0.004	0.010
lnINTCOV	0.006	0.026	0.096	0.087	0.282	0.489	0.013
eOPGROW	0.005	0.021	0.076	0.001	0.134	0.752	0.008
lnIIAMC	0.008	0.001	0.193	0.423	0.036	0.303	0.039
lnSIZE	0.000	0.000	0.000	0.000	0.003	0.003	0.993

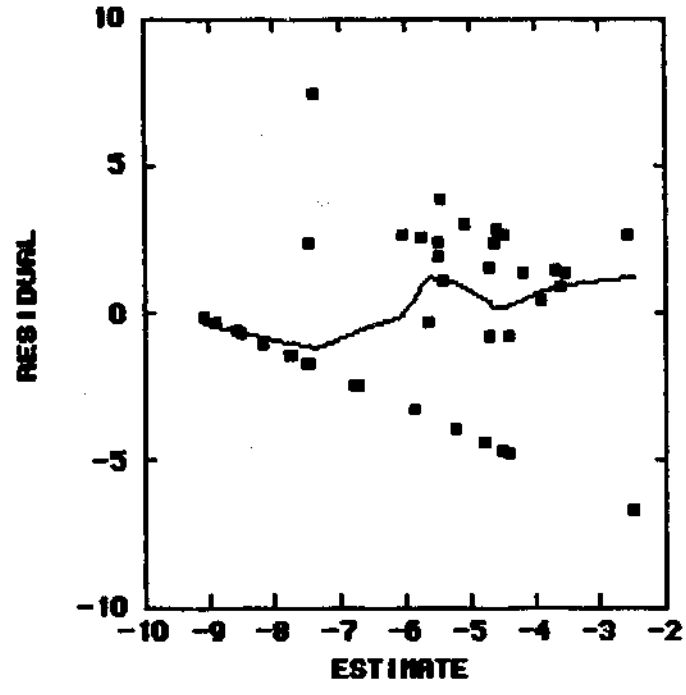

Figure 2 - A Plot of Residuals Against Estimates (Predicted Values) for 1990 (n = 39)

4.5 Specification Analysis

4.5.1 Alternative IIAMC and SIZE measures

In order to test the sensitivity of results reported in table 8, the measurements of the independent variable SIZE was calculated using sales revenue and total assets and the IIAMC variable was redefined using the following formulas:

$$(1) \quad IIAREV = \frac{IIA_t}{REV_t}$$

where,

IIA_t = IIAs' average balance as previously defined in section 3.2.1

REV_t = sales revenue at the end of year t.

$$(2) \quad IIATA = \frac{IIA_t}{TA_t}$$

where,

IIA_t = IIAs' average balance as previously defined in section 3.2.1

TA_t = total assets at the end of year t.

The results pattern of these tests are consistent with those in Table 8 and Coombes et al. (1993, p.25). In

1989, p values (two-tailed) are .029 for IIAREV, .042 for IIATA, .249 for REV, .355 for TA; and in 1990, p values (two tailed) are .033 for IIAREV, .054 for IIATA, .751 for REV and .394 for TA. These results are presented in Appendix D and Appendix E, as well as Appendix C presents a summary of variables' formulas.

4.5.2 Pooled Data Analysis

Table 11 presents a pooled data analysis which is combining data over 2 years 1989-1990. One of the underlying assumptions to use pooled data analysis is that

Table 11

OLS Regression Results (Pooled n = 84)

	Dependent Variable lnAMORT			
Variables	Pred.Sign	Coefficient	t-Stat	'p'(two-tailed)
Constant	+/-	-5.006	-0.887	0.378
lnIIAMC	-	-0.466	-3.588	0.001
eOPGROW	+	0.611	1.639	0.105
LIFE	+	3.063	4.118	0.000
$DEB^{0.25}$	-	3.593	1.310	0.194
lnINTCOV	+	-0.162	-0.594	0.554
lnSIZE	+	-0.264	-0.945	0.348
F-Ratio	5.659	(p=.000)		
estimated R^2	0.306			

the accounting policy choices are assessed independently from one year to the next (Coombes et al., 1993, p.25).

Table 11 indicates that both the IIAMC and LIFE variables are significant at p=.001, p=.000 levels respectively with the expected sign. Whereas the OPGROW variable is significant at p=.053 (one-tailed) with the expected sign, the INTCOV variable is significant at p=.097 (one-tailed) with the negative sign. The remaining variables are insignificant at the conventional levels. Consequently, the results from Table 11 are consistent with the results of univariate and multivariate analyses for each individual year discussed in sections 4.3 and 4.4, with the exception of hypothesis H_{1b} (OPGROW) which is supported at p=.053 (one-tailed) level, the results support hypotheses H_{1a} and H_2 and do not support H_{3a}, H_{3b} and H_4.

The estimated R^2 0.306 and F ratio 5.659 (p=.000) of the pooled model are higher then those in Table 8, probably because of the sample size is larger in pooled data analysis and hence providing better explanation of accounting choices.

CHAPTER 5

CONCLUSIONS

5.1 Conclusions and Summary

This research replicates with modifications the previous study done by Coombes et al. (1993). This research investigates whether the management's choice of IIAs' amortisation method is related to growth option nature of IIAs and the effects of IIAs' legal lives of the company (hypotheses H_{1a} and H_2), profit-based managerial compensation incentives (H_{1b}), company's indebtedness of existing debt contracts (H_{3a}), company's ability to raise future debt in debt markets (H_{3b}) or political vulnerability costs (H_4). The findings for both the univariate and multivariate regression analyses in this research support hypotheses H_{1a} and H_2 in the study by Coombes et al. (1993), which indicate that management's choice of amortisation on IIAs depends on whether the investment of these assets has a valuable growth option in order to generate cash flows into the company. The findings do not support hypotheses H_{3a}, H_{3b} and H_4, which reveal that the practice of IIAs' amortisation is not related to the reasons of reducing covenant limitations under debt contracts (H_{3a}) and future debt raisings (H_{3b}), and causing minimisation of political vulnerability (H_4). This research also attempts to examine whether any changes

in the IIAs' amortisation policy choice occurred before or after the issue of ED49 "Accounting for Identifiable Intangible Assets". It appears from the results that the only hypothesis that is affected by the introduction of exposure draft is the profit-based managerial compensation incentives (H_{1b}) to amortise IIAs. Support for H_{1b} only occurred in 1989, possibly due to ED49 "Accounting for Identifiable Intangible Assets" issued by the AARF which required systematic amortisation of IIAs. These findings are consistent with those of Coombes et al. (1993).

5.2 The Limitations of the Research

The limitations of the present study are, first, the detail disclosure of amortisation policy and classification of each individual identifiable intangible asset was inadequate, some companies even reported only the total balance of intangibles' amortisation which included both the goodwill and IIAs. Consequently, subjective judgement may inevitably be involved in the present study to calculate the amortisation amount of IIAs. One company is excluded in the sample due to the fact that it was unable to determine the company's IIAs' amortisation amount. This limitation also suggests that there is a violation in the goodwill approved standard ASRB 1013 "Accounting for Goodwill" in the study period 1989-1990 which requires the goodwill amortisation amount

to be disclosed individually and separately (ASRB, 1988, ASRB 1013, clause .70). Surprisingly, some of the consolidated annual reports, which ignored the ASRB 1013 amortisation disclosure requirements, did not have a qualified audit report attached.

Secondly, the study only concentrates on the top 150 listed Australian companies in June 1989, the results may not be generaliseable to smaller companies. Further, due to the sample consisting only of the top 150 listed companies, the study cannot include industry classification analysis as an explanatory variable that the resulted sample may be biased towards certain industries. Consequently, some industries have only one or not even any industry membership in the resulted sample. Therefore, further research would require a larger sample in order to better equip the study's inferential ability and to include the industry classification analysis in the study.

Finally, previous research in contracting theory (Watts & Zimmerman, 1990, p.144; Zmijewski & Hagerman, 1981) argues that companies may use a portfolio approach and not concentrate on a single accounting policy. Nevertheless, the controversial nature of IIAs' accounting policy (Coombes et al., 1993, p.5) justifies the research into a single accounting policy. However, caution must be

exercised in interpreting the results of the research into a single accounting policy.

5.3 The Implications of the Research

One implication of this research is that the results provided by the research suggests that contracting theory explains in part management's choice of accounting policy for amortisation of IIAs.

The findings provided by the present research are consistent with the study by Coombes et al. (1993) which suggests that the companies choose alternative IIAs' amortisation accounting choice to reveal the generation of cash flows from the investments in these assets. The findings further support the development of the framework of a contracting theory of IIAs' amortisation accounting choice.

The findings may have some implications for the policymakers should they revise the exposure draft on accounting for IIAs in the future. The evidence suggests that the implementation of the IIAs approved standard with statutory backing to enforce compliance may force the companies that have considered IIAs' amortisation policy as an important approach to reveal cash flows information

to shift to alternative approach (Coombes et al., 1993, p.31).

Finally, further research in this area may be extended to overseas countries including developing and developed countries. Only then can we ascertain whether contracting theory in relation to IIAs' amortisation accounting choice is transferable to other environments. Further, a larger sample would permit the inclusion of industry classification as an explanatory variable. Additional insight may be provided by the inclusion of other variables such as audit firm size.

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APPENDIX A

Sample Companies - 1989

Adelaide Brighton Cement Holdings Ltd

Adelaide Steamship Co Ltd, The

Amcor Ltd

Arnotts Ltd

Australian Gas Light Co Ltd, The

Bell Group Ltd

BHP Gold Mines Ltd

Bond Corporation Holdings Ltd

Bond Media Ltd

Boral Ltd

Broken Hill Proprietary Co Ltd, The

BTR Nylex Ltd

Bunnings Ltd

Burns, Philp & Co Ltd

Coles Myer Ltd

CRA Ltd

CSR Ltd

Elders IXL Ltd

Email Ltd

Goodman Fielder Wattie Ltd

Hardie (James) Industries Ltd

ICI Australia Ltd

Industrial Equity Ltd

Interwest Ltd

Jennings Industries Ltd

Kern Corporation Ltd

Lend Lease Corporation Ltd

Mayne Nickless Ltd

M.I.M. Holdings Ltd

National Consolidated Ltd

News Corporation Ltd

North Broken Hill Peko Ltd

Northern Star Holdings Ltd

OPSM Industries Ltd

Pacific Dunlop Ltd

Palmer Tube Mills Ltd

Pancontinental Mining Ltd

Placer Pacific Ltd

QBE Insurance Group Ltd

Queensland Cement Ltd

Rothmans Holdings Ltd

S.A. Brewing Holdings Ltd

Sarich Technologies Trust

Southern Farmer Group Ltd

Westmex Ltd

APPENDIX B

Sample Companies - 1990

Adelaide Brighton Cement Holdings Ltd

Arnotts Ltd

BHP Gold Mines Ltd

Bond Media Ltd

Boral Ltd

Broken Hill Proprietary Co Ltd, The

BTR Nylex Ltd

Bundaberg Sugar Co Ltd

Bunnings Ltd

Burns, Philp & Co Ltd

Coles Myer Ltd

CRA Ltd

CSR Ltd

Elders IXL Ltd

Email Ltd

Goodman Fielder Wattie Ltd

Hardie (James) Industries Ltd

ICI Australia Ltd

Jennings Group Ltd

Kern Corporation Ltd

Lend Lease Corporation Ltd

Mayne Nickless Ltd

Mitsubishi Motors Australia Ltd

M.I.M. Holdings Ltd

National Consolidated Ltd

News Corporation Ltd

North Broken Hill Peko Ltd

OPSM Industries Ltd

Palmer Tube Mills Ltd

Pancontinental Mining Ltd

Pioneer International Ltd

Placer Pacific Ltd

QBE Insurance Group Ltd

Queensland Cement Ltd

Rothmans Holdings Ltd

S.A. Brewing Holdings Ltd

Sarich Technologies Trust

Soul Pattinson (Washington H.) & Co Ltd

Tooth & Co Ltd

APPENDIX C

Variables Definition

AMORT = total amortisation write-offs of IIAs/average balance of IIAs

IIAMC = average balance of IIAs/market capitalisation

$OPGROW_{1989}$ = (1989 pretax operating profit + total amortisation write-offs of IIAs - 1988 pretax operating profit)/1988 pretax operating profit

$OPGROW_{1990}$ = (1990 pretax operating profit + total amortisation write-offs of IIAs - 1989 pretax operating profit)/1989 pretax operating profit

LIFE = 1 if the company has any IIA with a limited legal life, 0 otherwise

LEP = total debentures/total liabilities

INTCOV = (operating profit before tax, interest expenses, total amortisation write-offs of IIAs)/interest expenses

SIZE = market capitalisation

Specification analysis using sales revenue:

IIAREV = average balance of IIAs/sales revenue

SIZE = sales revenue

Specification analysis using total assets:

IIATA = average balance of IIAs/total assets

SIZE = total assets

APPENDIX D

OLS Regression Results

(Revenue instead of Market Capitalisation)

Variables	Pred.Sign	Coefficient	t-Stat	'p'(two-tailed)
		Dependent Variable: lnAMORT		
		1989 (n = 45)		
Constant	+/-	-2.050	-0.272	0.787
lnIIAREV	-	-0.433	-2.270	0.029
eOPGROW	+	0.758	1.431	0.161
LIFE	+	3.185	3.003	0.005
$DEB^{0.25}$	-	4.382	1.212	0.233
lnINTCOV	+	-0.021	-0.051	0.960
lnSIZE	+	-0.431	-1.171	0.249
F-Ratio	3.253	(p=.011)		
estimated R^2	0.339			
		1990 (n = 39)		
Constant	+/-	-7.925	-1.093	0.282
lnIIAREV	-	-0.475	-2.231	0.033
eOPGROW	+	0.747	1.140	0.263
LIFE	+	2.794	2.392	0.023
$DEB^{0.25}$	-	2.924	0.569	0.573
lnINTCOV	+	-0.234	-0.514	0.611
lnSIZE	+	-0.113	-0.320	0.751
F-Ratio	2.053	(p=.087)		
estimated R^2	0.278			

APPENDIX E

OLS Regression Results

(Total Assets instead of Market Capitalisation)

Variables	Pred.Sign	Coefficient	t-Stat	'p'(two-tailed)
Dependent Variable: lnAMORT				
		1989 (n = 45)		
Constant	+/-	-2.509	-0.276	0.784
lnIIATA	-	-0.416	-2.101	0.042
eOPGROW	+	0.777	1.457	0.153
LIFE	+	3.143	2.998	0.005
$DEB^{0.25}$	-	4.477	1.250	0.219
lnINTCOV	+	-0.014	-0.033	0.974
lnSIZE	+	-0.407	-0.936	0.355
F-Ratio	3.134	(p=.014)		
estimated R^2	0.331			
		1990 (n = 39)		
Constant	+/-	-1.936	-0.200	0.843
lnIIATA	-	-0.466	-1.998	0.054
eOPGROW	+	0.650	0.992	0.329
LIFE	+	2.848	2.358	0.025
$DEB^{0.25}$	-	3.249	0.632	0.532
lnINTCOV	+	-0.300	-0.642	0.526
lnSIZE	+	-0.391	-0.864	0.394
F-Ratio	1.924	(p=.107)		
estimated R^2	0.265			